United Nations E/CN.17/2008/13/Add.3

Economic and Social Council

Distr.: General
11 January 2008

Original: English

Commission on Sustainable Development
Sixteenth session
5-16 May 2008
Item 3 of the provisional agenda*
Thematic cluster for the implementation cycle 2008-2009 — review session

Discussion papers submitted by major groups

Note by the Secretariat

Addendum

Contribution by indigenous people**

Contents

		Paragraphs	*Page*
I.	Introduction	1–3	2
II.	Indigenous peoples' lands and waters	4–30	2
III.	Sustainable agriculture and rural development	31–58	11
IV.	Drought and desertification	59–72	18

* E/CN.17/2008/1.

** The views and opinions expressed do not necessarily represent those of the United Nations.

08-20555 (E) 050208

I. Introduction

1. Throughout their participation in the Commission on Sustainable Development, indigenous peoples have consistently stated their view that sustainable development and self-determination are two sides of the same coin. Reviewing progress on the global commitments made in the Johannesburg Plan of Implementation goes hand in hand with assessing advances in the human rights situation of indigenous peoples internationally and nationally.

2. The adoption by the General Assembly at its sixty-first session of the United Nations Declaration on the Rights of Indigenous Peoples (resolution 61/295), is a milestone in the international acknowledgement of the historical injustice and discrimination faced by indigenous peoples, with respect to their human rights and their political, economic and social development. As such, it constitutes significant guidance on implementing Agenda 21 and the Johannesburg Plan of Implementation regarding the role and contributions of indigenous peoples to sustainable development. Likewise, it provides a framework for indigenous peoples' review of the thematic issues which are under consideration by the Commission on Sustainable Development at its sixteenth session: lands, including drylands; water; agriculture and rural development; drought; and desertification.

3. Relevant excerpts of the United Nations Declaration on the Rights of Indigenous Peoples pertaining to the sixteenth session of the Commission can be found in General Assembly resolution 61/295.

II. Indigenous peoples' lands and waters

4. Land is at the core of the survival and well-being of indigenous peoples around the world. It is their spiritual foundation and source, shaping distinct peoples, cultures and identities. Dry lands, agricultural lands, forestlands, grasslands, islands and ice — all provide nurture and sustenance for distinct indigenous peoples' physical, economic, cultural and spiritual lives. This is why indigenous peoples around the world have struggled throughout history to defend these lands and to hold them in trust for future generations.[1]

5. In addition, indigenous peoples around the world have evolved collective rights and responsibilities about the use and ownership of lands and resources that are embodied in customary law. The United Nations Declaration on the Rights of Indigenous Peoples recognizes indigenous customary law, ancestral land rights and traditional resource management as central pillars to the exercise of self-determination and self-government. Indigenous peoples have underlined the importance of legislative and policy reform towards the formal recognition of those customary laws and rights in national legislation in the different countries in which they live. Land security is therefore a fundamental underpinning of indigenous peoples' efforts towards sustainable development.

[1] Stavenhagen, Rodolfo. An Essay on Land, Territory, Autonomy and Self-determination. Based on United Nations Development Programme, Human Development Report Office, Occasional Paper, Background paper for the *Human Development Report* 2004, 2004/14.

A. Recent developments affecting the land rights of indigenous peoples

6. Contrary to Agenda 21, the past 10 years have seen an accelerated and cumulative expropriation of the land, waters, territories and resources of indigenous peoples away from customary use and management towards new commercial land uses and environmental mechanisms. These include expansion of extractive industries, plantations for cash crops and agrofuels, as well as expanded protected areas, carbon sequestration schemes and carbon offsets, and projects for environmental protection and services. The overall cumulative impacts of those developments on indigenous peoples' security and well-being is severe, given the close dependence and interrelationship that indigenous peoples have with their lands, territories and resources.

B. Forestlands

7. Forest loss is a major factor that causes the displacement of indigenous peoples from their ancestral lands. Between 2000 and 2005, the net forest loss was 7.3 million hectares per year, or 20,000 hectares per day. In addition, large areas of forestlands traditionally used by indigenous peoples have been expropriated to give way to large-scale industrial logging, industrial tree plantations and monocropping plantations.[2]

8. The World Bank estimates that more than 1.6 billion people depend to varying degrees on forests for their livelihoods. In developing countries about 1.2 billion people rely on agroforestry farming systems, including about 60 million indigenous people who are almost wholly dependent on forests.

9. Land use classifications rarely coincide with actual realities. Large areas are classified as forestlands under the jurisdiction of forest departments even though there is little or no tree cover. Land use options for local people are restricted, and conflicts between local people and government planning and forestry agencies are therefore common. This points to the need for a process of land use rationalization, which balances actual forest areas, agriculture and other land uses.

10. A main challenge faced by people living in areas classified as forest is that their economies are defined in terms of forestry. Yet in fact most, if not all, forest residents practice mixed economies in which use of timber and non-timber forest products are only part of their livelihood strategies. The prevalent understanding of traditional systems of shifting cultivation and subsequent restrictions on this land use strategy remains poor.

11. The historical legacy of colonial forestry, where the State controls forests to the exclusion of community rights and interests, remains deeply rooted today. For example, some 22 per cent of the national territory of India, some 40 per cent of Thailand's national territory, and some 55 per cent of the Philippines and 70 per cent

[2] Victoria Tauli-Corpuz and Parshuram Tamang. Oil Palm and other Commercial Tree Plantations, Monocropping: Impact on Indigenous Peoples' Land Tenure and Resource Management Systems and Livelihoods, Permanent Fórum on Indigenous Issues, Sixth Session, New York, May 2007.

of the country in Indonesia are classified as State forest areas. A similar pattern prevails in much of Africa and, increasingly, in Latin America.[3]

C. Restoration of community rights in forests[4]

12. Moves to restore community rights in forests have shown mixed results. Joint forest management in India, for example, has been criticized for failing to protect customary rights and for entrenching the interests of higher caste elites and forestry department officials. Similarly, the 25-year leases offered to communities in Cameroon as a form of community tenure have excluded hunters and gatherers. In Indonesia, despite changes in legislation designed to promote community rights in forests, only 0.2 per cent of what are considered to be State forest areas are currently under community tenures. In some parts of Latin America, political pressure has successfully led to the revision of constitutions and land tenure laws in favour of indigenous peoples. In Asia, customary rights are increasingly recognized as a basis for rights to land in constitutions, new land laws and court rulings. In Africa, while tenurial regimes in Central Africa remain in general unhelpful to indigenous peoples, in Southern and Eastern Africa, reforms in favour of community control of forestlands are gaining ground.

Forest peoples of the Central African rainforests[a]

There are between 250,000 and 300,000 forest peoples (Pygmies) in the Central African rainforests whose way of life as hunters and gatherers is in rapid and critical decline. They are the Mbuti (or Bambuti) and Efe of the Ituri forest in the Democratic Republic of the Congo; the Baka of south-eastern Cameroon and north-western Republic of the Congo; the Aka (or Ba-aka) of northern Republic of the Congo and the Central African Republic; the Batwa in Rwanda, Burundi, eastern Democratic Republic of the Congo, and south-western Uganda; the Bakola of south-western Cameroon; and the Basua (numbering only perhaps 65-70 people) in western Uganda. The ongoing marginalization of those groups has been particularly accelerated by the political upheavals and civil war in the region.

Traditionally, the Pygmies lived in small nomadic bands in the forest, hunting and gathering forest products and exchanging them with settled farming communities for salt, metal tools and other items. Their forest territories extended to thousands of hectares, but have never been formally recognized either in State law or the customary laws of farming communities. The Pygmy peoples are now facing unprecedented pressures on their lands, forest resources and societies as forests are logged, cleared for agriculture or turned into exclusive wildlife conservation areas. They are becoming outcasts on the edge of dominant society as they become settled in villages, increasingly dependent on the cash economy but unable to enjoy the rights accorded to other citizens

[3] Marcus Colchester, et al. Forest Peoples, Customary Use and State Forests: the case for reform. Paper presented to the eleventh Biennial Congress of the International Association for the Study of Common Property, Bali, Indonesia, 19-23 June 2006.

[4] Ibid., pp. 5-6.

and marginalized in policy and decision-making. As these pressures intensify, Pygmies are suffering increasing poverty, racial discrimination, violence and cultural collapse. Throughout central Africa their traditional way of life is disappearing and their incomparable knowledge of the forest is being lost.[5]

[a] Justin Kenrick, The Forest Peoples of Africa in the 21st Century, Present Predicament of the Hunter-Gatherers and the Former Hunter-Gatherers in the Central African Rainforests, in *Indigenous Affairs* No. 2/2000; http://indigenousaffairs.org.

D. National parks and eco-parks

13. The establishment of national parks and eco-parks in all regions is another cause of displacement of indigenous peoples. In many cases, they are legally deprived of their lands and resources by laws declaring protected areas, reserved mountain areas, forest reserves, national parks or wildlife sanctuaries over areas occupied by indigenous peoples. If they continue to occupy national parks or reservations, they do so under threat of punishment or eviction.

14. An example is the National Park Act of Thailand that states that in a national park, no one is allowed to take hold or own any land, build anything or slash and burn the forest area. Further, the law states that in case of a violation, officials are authorized to order the perpetrators to destroy or remove such buildings or adjust the area back to its original state. The enforcement of those laws forces hill tribe peoples to repeatedly move out of their homelands and arable areas, despite longstanding prior settlement and use.[6]

15. Another example is the Modhupur National Park Development, in Modhupur, Tangail District, Bangladesh, an eco-park project initiated in 1999. The development of the eco-park involved the erection of walls that cut across the Modhupur forest, the ancestral land of the Garo and Koch peoples, without previously consulting them. Suspended in 2004, the eco-park project was resumed after the declaration of a state of emergency in January 2007.[7]

E. Impact of dams and mines on water resources

16. Mining is another major cause of land loss. Mining operations and oil drilling displace indigenous communities, destroy natural habitats, pollute land and water and cause irreparable damage to fragile ecosystems. In addition, mining operations deplete water sources from the surface, subsurface and aquifers and divert much needed water for irrigation and domestic use away from communities.

[5] Forest Peoples Project, http://forestpeoples.org.

[6] Indigenous Peoples Human Rights Report in Asia: Cambodia, Thailand and Nepal. Human Rights and Advocacy Committee. Asia Indigenous Peoples Pact Foundation. Chiang Mai, Thailand. December 2006.

[7] Stavenhagen, Rodolfo. General Considerations on the Situation of Human Rights and Fundamental Freedoms of Indigenous Peoples in Asia. 2007.

17. The construction of large hydroelectric projects is a resurgent threat to indigenous peoples' lands and waters, in the wake of increased emphasis on renewable sources of energy. The experience of indigenous peoples with large hydroelectric projects has been one of cultural alienation, dispossession of land and resources, lack of consultation, inadequate compensation, human rights abuses and lowering of living standards.[8] The construction of dams poses a threat to indigenous peoples' land, territories and resources by flooding the lands that sustain indigenous peoples' food security. Such construction disrupts and destroys subsistence-based cultural practices and forcibly displaces entire communities. Some flashpoints for large dams affecting indigenous peoples include: the north-east region of India; Central America, in the wake of the Puebla Panama Plan; Central Africa; and Canada.

F. Chemicals, toxin and environmental health

18. The use of agricultural chemicals, heavy metal and toxic contamination from mining practices, and the widespread proliferation of persistent organic pollutants in the atmosphere and ecosystems presents a particularly critical threat to indigenous peoples, throughout every region of the world. Persistent organic pollutants in the form of commercial pesticides, herbicides, fungicides, fertilizers and dioxin contaminate the natural water and irrigation sources on which indigenous farmers and communities depend on for their livelihood. Persistent organic pollutants contaminate the traditional fish, game and livestock that provide essential food sources for the survival of indigenous peoples. Indigenous children are uniquely vulnerable to environmental exposure because they maintain a close relationship to the environment, and they are in a dynamic state of growth, with many vital systems such as nervous, immune and respiratory systems not fully developed upon birth, and are thus more likely to suffer and die from preventable health problems caused or exacerbated by environmental conditions.[9]

Childhood brain dysfunction in Sonara, Mexico[a]

A study led by Elizabeth Gillette illustrates childhood brain dysfunction from agritoxin exposure in the Yaqui Valley in Sonara, Mexico. The research team studied two groups of 4-5 year old Yaqui children — one from the valley, one from the foothills. The children shared the same genetic backgrounds, similar diets, the same water, cultural patterns and social behaviours. The difference was in their exposure to pesticides. Agritoxins have been used in the valley since the 1940s; in the foothill region they are avoided. In 1990, high levels of multiple pesticides were found in the cord milk of newborns and in their mothers' breast milk.

[8] Marcus Colchester, Forest Peoples Programme: dams, indigenous peoples and ethnic minorities. Thematic report prepared for the World Commission on Dams, November 2000.

[9] Indigenous Environmental Network statement on Persistent Organic Pollutants and Environmental Health Related to the World Summit on Sustainable Development, Johannesburg, South Africa, 2002.

Tests of the two groups of children demonstrated that children exposed to pesticides had noticeably diminished memory, stamina and fine hand-eye coordination than those exposed to lower levels. According to the study, one of the most telling differences between the pesticide-exposed valley children and the foothill children was in their ability to draw a person, which is often used as a non-verbal screening measure of cognitive ability, and could also indicate a breakdown between visual sensory input and neuromuscular output as found with brain dysfunction.

[a] Elizabeth A. Gillette, Maria Mercedes Meza, Maria Guadalupe Aguilar, Alma Delia Soto and Idalia Enedina Garcia, An Anthropological Approach to the Evaluation of Preschool Children Exposed to Pesticides in Mexico, Environmental Health Perspectives, Volume 106 #6 (1998): 351.

G. Loss of traditional riverine livelihoods

19. Exploitation of river resources for commercial purposes undermines the traditional livelihoods of indigenous peoples. For instance, among the Majhi indigenous people of Nepal, fishing and boating were the traditional occupations of the people living near the Arun River. However, government policies aimed at generating income through the use of local water resources have caused the dislocation of the Majhi from those traditional sources of livelihood. Contracts on 11 crossing points along the Arun River were given to the high caste, or Bahuns. Fares for crossing the river by boat are now paid to the Bahuns instead of to the Majhi. Fishing has also been taken over by commercial contractors. Majhi tried to protect their fish stock by catching only the larger fish, according to their religious beliefs. They fish with nets and hooks and take care not to catch the smaller fish and fingerlings. Commercial contractors, however, catch every kind of fish indiscriminately with the use of poisons. Presently, fishing and sailing have been assumed by the Bahuns. Ecology has been destroyed as a result and many species of fish have become extinct. The Majhi's traditional livelihood of fishing and boating are hardly practised anymore.[10]

H. Water problems in Africa

20. In Africa, inadequate potable water, sanitation and waste disposal in rural areas leave populations vulnerable to water-borne and other environmental diseases. Malaria, lung and other respiratory diseases are still major killers in Africa. In Kenya, there is also a remarkable difference between groups in terms of access to safe drinking water. The rich segment of the population has comparatively better access to this basic commodity and safe sanitary means than the poor segment. The proportion of population with access to drinking water in rural areas was 43.5 per cent compared with urban areas which had 89.7 per cent.[11]

[10] Human Rights and Advocacy Committee. Asia Indigenous Peoples Pact Foundation; Indigenous Peoples Human Rights Report in Asia: Cambodia, Thailand and Nepal, Chiang Mai, Thailand. December 2006.

[11] Lucy Mulenkei, Indigenous Information Network, Africa Paper for the sixteenth session of the Commission on Sustainable Development.

I. Actions taken to implement Agenda 21

1. Documentation of customary sustainable use practices and management[12]

21. Indigenous communities in Suriname, Guyana, Venezuela, Thailand and Cameroon, in collaboration with the Forest Peoples Programme, carried out community research about customary resource management and submitted those studies to the Convention on Biological Diversity. Article 10 (c) of the Convention requires States to protect and encourage customary use of biological resources in accordance with traditional cultural practices that are compatible with conservation or sustainable use requirements.

22. All five studies documented the remarkable sophistication and variety of customary resource use practices which are rooted in their cultures and long associations with particular ecosystems and locales. These showed that indigenous peoples' customary use areas are not open access zones, but are already regulated commons, subject to customary laws and controlled by indigenous institutions with their own locally recognized jurisdictions and authority. The communities' customary laws comprise common practices that have been consistently applied over time and that are enforced by social norms or sanctions through measures such as the following:

(a) Collective notions of property and group access, which define and control who has access to specific resources;

(b) Customary rules which regulate residence and membership of communities;

(c) Kinship systems and particular areas;

(d) Diffuse expressions of power and authority within society which sanction behaviour through subtle social controls;

(e) Moral codes and spiritual belief which underpin respect for customary authorities;

(f) Norms and the opinions of other community members.

23. The studies also show that the main threats to the sustainability of those ecosystems come not from community resource use but from outside interventions, such as imposed dams, logging, mines, tourism and market demands for bushmeat. In a number of instances in which community resource use has begun to put pressure on the environment, such pressure tends to arise in cases where the land base has been restricted, traditional knowledge has been discounted or eroded, or customary uses made illegal. The studies also show that communities have a much greater incentive to use biodiversity sustainably when they have secure rights over their territories and resources.[3]

2. Indigenous peoples' initiatives in water resource management

24. In the face of serious threats to their water resources, indigenous peoples use traditional knowledge systems as well as innovative practices in the management and conservation of their water resources. For example:

[12] See http://www.forestpeoples.org.

(a) **Eagle-Condor Aquaculture Exchange Programme.** In North America, the Indigenous Aquaculture Network taps the potential of aquaculture and utilizes traditional knowledge in anchoring and operating fish facilities. One of its programmes is the Eagle-Condor Aquaculture Exchange Programme, which creates an opportunity for indigenous individuals from the North and the South, representing tribal government projects, universities/colleges, native organizations, tribal community-based groups and indigenous traditional practitioners of water knowledge, fishing and shellfish cultures, to participate in an exchange programme. This exchange reinforces indigenous knowledge and the cosmovision of indigenous peoples as a foundation towards finding a balance in the new emerging world of the aquacultural industry;[13]

(b) **Collective water management.** The *lampisa* system of water distribution among the Ipidlisan of the northern Philippines is a noteworthy approach to the maintenance and management of irrigation systems. Instituted in the early 1930s, it has survived for seven decades, triumphing over individualism, kinship favouritism and political pressures to promote communal ownership and control over a vital production resource. The extensive irrigation system was constructed through collective labour, and even today a mechanism exists whereby all beneficiaries contribute to the collective maintenance of the irrigation system and the rehabilitation of the irrigation canals. For the day-to-day management of the irrigation system, the community has appointed overseers called *lampisa* who are responsible for the maintenance of the irrigation canals and the rice fields throughout the dry season. They must conduct regular inspections to ensure that the water flow along the irrigation system is maintained and that all rice fields serviced by the system receive their fair share of the water. The *lampisa* system provides water services at low expense — just 5 per cent of the total volume of production, a rate which can hardly compare with the volume of crop loss that rice producers in nearby central Sagada suffer due to the absence of a systematic means of ensuring equitable water distribution in their communities;[14]

(c) **Dugong and Marine Turtle Management project.** The national alliance of Indigenous Land Councils across northern Australia works closely together with the Australian Indigenous Traditional Owners and communities on a national Dugong and Marine Turtle Management project. This project involves communities across the north coast of Australia and the Torres Strait which work together to develop sustainable, community-driven management plans for dugong and sea turtle protection and management. The project combines indigenous knowledge and traditional management practices with the best of scientific research and Western science to develop land and sea management plans with the best outcomes for all.[15]

J. Legislative and policy reform

25. The Government of Bolivia observed International Human Rights Day on 10 December 2007 by passing the United Nations Declaration on the Rights of Indigenous Peoples as National Law 3760. The challenge today is to bring policy and implementation into reality.

[13] Indigenous Environmental Network.

[14] Montañosa Research and Development Centre.

[15] See http://www.iwgia.com.

26. There are existing policies and laws in other countries that recognize the rights of indigenous peoples to their traditional lands and territories. Some examples are the Native Customary Rights as contained in the Sarawak Land Code (1958) in Malaysia and the Native Title Act of Australia of 1993 and the 1997 Indigenous Peoples' Rights Act of the Philippines.[2] However, they also contain escape clauses or are systematically weakened in the name of national development by subsequent interpretations or amendments to those acts. Others are simply extinguished.

27. In many Pacific nations, rights in land are effectively recognized on the basis of custom and access to, and development of, those resources by outsiders is subject to negotiation with landowners, who may demand benefit-sharing and compensation. In recent years, several other Asian countries have adopted legislation to protect the rights of indigenous peoples. An example is the 2003 Land Law of Viet Nam, which includes the category of communal land and allows indigenous people to apply for their ancestral land and forest rights. In 2006, India adopted the Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Bill. The bill grants extensive rights to indigenous forest dwellers, including the right to possess forestland for habitation and cultivation purposes, as well as the right of access to forest resources and to participate in conservation efforts. The bill further incorporates a special procedure for the establishment of critical wildlife areas as well as for the informed relocation and rehabilitation of the affected communities.[7]

28. While legislation to protect indigenous land rights has been adopted by a number of countries, there are difficulties in their effective implementation on the ground. National policies are failing to halt the continuing invasion of extractive industries into indigenous peoples' territories. An example is the Indigenous Peoples' Rights Act of the Phillipines, which excludes mineral lands from ancestral land claims and ancestral domain titles and has been ineffective in preventing mining companies from filing applications over indigenous peoples' territories.

29. Among the reasons for weak implementation were conflicting policies, which prioritize so-called national economic and environment interests over local rights, needs and alternatives; competition between line Ministries and government departments for control of lands and budgets, amid overlapping jurisdictions over "lands" and "forests"; discrimination against the rural poor and ethnic minorities and lack of popular awareness of rights, laws and administrative procedures.

K. Judicial decisions in national and regional courts

30. On the other hand, court cases are being won by indigenous organizations who have taken State administrations or private companies to court for violating their fundamental rights. In Japan, the Ainu are not officially considered as indigenous peoples in the 1997 Ainu Cultural Promotion Law, but a number of court decisions have affirmed their rights based on international indigenous rights standards. This is also the case of Malaysia, where the courts have affirmed the aboriginal title of the Orang Asli over their traditional lands.[7] In Botswana, where a court case on the relocation of San hunter gatherers from the Central Kalahari Game Reserve has been ongoing for some years, a high court ruling in December 2006 stated that the removal of people and denial of their land and subsistence rights in the Central Kalahari was unlawful. This was a remarkable victory for the San and for the legal

system of Botswana, which demonstrated the independence of the judiciary with this unexpected ruling. In Argentina, the Lhaka Honhat, who have fought for title to their territory for years, had their case admitted by the Inter-American Commission on Human Rights, thus taking a great step forward in their struggle.[15]

III. Sustainable agriculture and rural development

31. Indigenous peoples have developed and refined traditional sustainable agriculture, maintained hunting, fishing and gathering practices and developed animal husbandry, all on the basis of indigenous and local knowledge handed down through the generations. Those practices have enabled indigenous communities to achieve sustainability and food security — to adequately address hunger and nutrition — providing sufficient food year after year despite fluctuations in weather patterns and natural disturbances. By adhering to these practices, indigenous communities have been able to retain economic independence and self-sufficiency and ensure that the diversity of plant and animal species remains high.

32. Over millenniums, indigenous peoples have become physically and metabolically accustomed to the foods found, gathered and cultivated in local areas and the animals they have traditionally hunted, fished and raised. Food is the main medicine, essential to community and individual health. Our bodies are made of our food and the land that provides it. Many spiritual practices are centred on traditional foods. Some indigenous tribal cultures derive their family clan or kinship identification from certain food groups and animals.

33. Agricultural modernization has caused the widespread introduction of commercial crops for export based on the intensive use of modern agrochemical inputs. The use of mechanization, fertilizers, insecticides, high yielding varieties, genetically modified seeds and other new technologies associated with modern agriculture, displace the traditional subsistence farming on which most indigenous communities depend for their survival.[1] For instance, in Dandanac, Mountain Province, Philippines, the introduction of high yielding varieties of rice has decreased the number of traditional rice varieties of the Kankanaey community by more than half. This has undermined the synchronized planting calendar, which in turn has adversely affected the mutual aid system and other traditional practices, and has disrupted the exchange of traditional knowledge within the community.[16]

34. Modernization has also led to forced removal of communities, including the abolition of traditional forms of shifting cultivation and the eradication of illicit crops. The responses of domestic and foreign governments to political violence and illegal economic activity, such as the massive fumigation of croplands and forests as part of "Plan Colombia", further threaten indigenous agricultural and other food security practices. In Thailand, the Government has launched two projects to promote national security, environmental conservation and drug suppression, but at the expense of 1,115 indigenous communities living in the forests and highlands. The New National Policy on Forestry and Natural Resource Management, and the Third Master Plan on Highland Resources Management (2004-2006) both aim to relocate non-State recognized villages as a measure to halt the problem of increasing

[16] Evangelischer Entwicklungsdienst Philippine Partners Task Force on Indigenous Peoples Rights. Our Harvest in Peril: A Sourcebook on Indigenous Peoples' Food Security. Baguio City. 2004.

deforestation. In implementation of those policies, cases of forced eviction and attempted forced eviction have taken place, with no preparation of relocation sites, adequate housing and alternative livelihood.[15]

35. Sedentarization policies have affected people who have traditionally practised nomadic pastoralism and shifting cultivation in different global regions. In Southeast Asia, sedentarization policies have been designed for ethnic minorities' areas, with the intention of changing certain traditional practices that are considered backward, environmentally unsound and a constraint to modern agricultural development.[17] Viet Nam has instituted sedentarization programmes which have included the relocation of indigenous communities without their consent, and large-scale in-migration of majority ethnic Kinh people to areas traditionally inhabited by indigenous peoples. This has had disastrous effects on indigenous society. The traditional land rights of the indigenous peoples, such as in the Dak Lak, Lam Dong and Gialai provinces, were disregarded, while Kinh in-migrants were allotted the indigenous peoples' lands.[18] According to the statistics of the National Department for Sedentarization, by 1990, after 20 years of implementation of the sedentarization policy, 2.8 million people had been resettled in 26 mountainous areas.[19] Similar programmes have also been implemented in the Chittagong Hill Tracts in Bangladesh by relocating indigenous communities to set up rubber plantations or fruit orchards.[18]

A. Expansion of biofuel plantations

36. A recent development is the expansion and proliferation of plantations on indigenous peoples' lands and territories. Oil palm plantations have become one of the fastest growing monocropping plantations in the tropics not only in the Asian-Pacific, but also in the African and the Latin American and the Caribbean regions. In 1997 it was estimated that oil palm plantations occupied 6.5 million hectares; by 2005, this coverage had increased to 12 million hectares, including 4 million hectares in Malaysia and 5.3 million hectares in Indonesia,[20] which recorded the greatest rate of increase in terms of forests converted into oil palm plantations. In a period of 30 years (1967-1997) oil palm plantations have increased 20 times with 12 per cent average annual increases in crude palm oil production.[21] The Government has announced new plans, under the Kalimantan Border Oil Palm Mega-Project (April 2006), to convert an additional 3 million hectares in Borneo, of which 2 million will be in the border of Kalimantan and Malaysia.

37. Governments and corporations are now increasingly investing in alternative energy sources, including biofuels, owing to the depletion of oil and gas reserves and the resulting build-up of carbon and other greenhouse gas emissions causing

[17] *Asian Development Bank Report on Indigenous Peoples of Viet Nam.*

[18] Raja Devasish Roy. Traditional Customary Laws and Indigenous Peoples in Asia. Minority Rights Group International. 2005.

[19] *Asian Development Bank Report.*

[20] See statement presented by Rukka Sombolinggi of Aliansi Masyarakat Adat Nusantara during the fifth session of the Permanent Forum on Indigenous Issues. See also World Rainforest Movement (2006), Oil Palm, From Cosmetics to Biodiesel: Colonization Lives On. World Rainforest Movement, Uruguay.

[21] Casson, Ann. The Hesitant Boom: Indonesia's Oil Palm Subsector in an Era of Economic Crisis and Political Change, Centre for International Forestry Research, 1999.

global warming. indigenous peoples' lands have long been exploited for oil, gas and coal to fuel industrial development. Today, indigenous territories are again targeted for biofuel production as an adaptation measure to climate change. However, research studies show that large, industrial-scale monoculture production of biofuel crops (also called agrofuels) destroy fragile ecosystems, threaten biodiversity, concentrate corporate power and increase inequities in rural communities. Expansion of plantations has led to habitat loss and destruction of livelihoods, resource management systems, cultures and loss of traditional forest-related knowledge. Biodiverse natural forests are cleared and replaced with industrial plantation forests. These monocrops impact negatively on the water cycle, as non-native, fast-growing trees use high volumes of water. High levels of herbicides and pesticides are commonly used to suppress competing growth from other plants and to prevent disease outbreaks, which also has an impact on water quality. In addition to those harmful environmental impacts, plantation forests offer very few employment opportunities, resulting in a net loss of jobs in areas overtaken with forest plantations.[22]

38. The development of carbon sinks and trading of carbon emissions are exacerbating the earlier problems related to plantations that indigenous peoples are facing. Such commodification contradicts the basic world views and values of indigenous peoples, who have used their resources and lands in a sustainable manner.

B. Impacts of biotechnology on food security

39. Genetically modified organisms and seeds pose a serious threat to the native seed stocks and plants carefully cultivated by indigenous agriculturalists for millenniums. Present and future generations are affected because genetically engineered changes made to plants, animals and fish will manifest themselves in the future generations of those organisms. This irreversible nature of genetic engineering permanently undermines indigenous peoples' food sovereignty.

40. In November 2001, Ignacio Chapela and David Quist, scientists from the University of California at Berkeley, published an article in the scientific journal *Nature* revealing that indigenous corn in Oaxaca, Mexico, had been contaminated with DNA from genetically modified organisms. The introduction of genetically altered DNA could cause the native corn to lose its ability to reproduce in its natural environment, destabilizing the economic livelihood of small-scale farmers. The National Commission on Biodiversity and the National Ecological Institute sampled indigenous corn from 20 communities in Oaxaca and 2 in Puebla states in southern Mexico. They found that in 95 per cent of these communities, between 1 per cent and 35 per cent of the indigenous kernels they had sampled contained traces of DNA from genetically modified organisms. In total, 8 per cent of the 1,876 seedlings they tested were polluted by genetically modified organisms. Jorge Soberon, director of the National Commission on Biodiversity, declared that this genetic pollution was

[22] Santa Barbara, Jack. The False Promise of Biofuels. A Special Report From The International Forum on Globalization and the Institute For Policy Studies, September 2007.

the worst case of contamination in crops from genetically modified organisms ever reported in the world.[23]

41. The introduction of genetic use restriction technologies to produce seeds unable to reproduce, also known as terminator seeds, is a major issue for indigenous farmers who rely on the sharing and exchange of saved seeds. The use of terminator seeds embodies an unequal relationship between farmers and commercial seed producers, creating dependency on large agrochemical corporations.[24]

42. Other impacts of genetic use restriction technologies on smallholder farmers, indigenous and local communities and farmers include the potential to:

(a) Reduce and limit traditional seed exchange practices;

(b) Reduce the knowledge and local innovation capacity of local and indigenous communities for crop improvement, threatening local food security;

(c) Precipitate the loss of local knowledge, reduce or negatively affect local agrobiodiversity, resulting in a deterioration of indigenous knowledge systems;

(d) Displace traditional farming systems and the social, cultural and spiritual dimensions associated with them;

(e) Cause seed dependency or crop failure through the potential misuse or unintentional use of seeds produced by genetic use restriction technologies;

(f) Create negative and irreversible changes in the environment caused by gene flow or other problems with environmental containment;

(g) Facilitate the appropriation of some elements of indigenous traditional knowledge and genetic resources in a permanent and irreversible manner.[25]

C. Actions of indigenous peoples on sustainable agriculture and rural development

43. Indigenous practices of sustainable agriculture, hunting, fishing, gathering and animal husbandry have enabled indigenous communities to achieve food security, despite fluctuations in weather patterns and natural disturbances. Traditional sustainable agricultural practices include the use of herbs as organic fertilizers or pesticides, traditional sharing of water resources for irrigation, preservation of seed stock, cooperative labour, and many others. By adhering to those practices, indigenous communities have been able to retain their economic independence and self-sufficiency and ensure the diversity of plant and animal species.[26]

---

[23] DeSantis, S'ra. Genetically Modified Organisms Threaten Indigenous Corn.

[24] Castro Diaz, Estebancio. Food Sovereignty and Traditional Knowledge. Paper presented on behalf of International Indian Treaty Council at the international workshop on traditional knowledge organized by the Permanent Forum on Indigenous Issues, 2005.

[25] Le'a Malia Kanehe, Esq. Impacts of Genetic Engineering on Indigenous Peoples' Right to Food, Food Security, and Food Sovereignty: A Case Study from Hawaii. Second Global Consultation for Indigenous Peoples on the Right to Food, Food Security and Food Sovereignty in Puerto Cabezas, Nicaragua, organized by the International Indian Treaty Council in conjunction with the Sustainable Agriculture and Rural Development Initiative of the Food and Agriculture Organization of the United Nations (7-9 September 2006).

[26] Indigenous Environmental Network statement.

44. There are common initiatives across regions which highlight best practices from indigenous peoples' cultures in agriculture. The following are some exemplary practices that have proven to be sustainable as well as some initiatives from indigenous peoples communities and organizations.

1. Documentation and promotion of good practices from indigenous agriculture

45. Jane Mt. Pleasant, professor of horticulture and director of the American Indian Programme at Cornell University, Ithaca, New York, mines her Iroquois heritage for planting and cultivation methods that work for today's farmers. She promotes an agronomically sound cropping system called the three sisters, featuring the polyculture of beans, corn and squash, which are nutritious staples in the Iroquois diet. Corn and beans do better when they are grown together. Corn provides protection from weeds and insects and acts as a scaffold to support twining bean plants. The beans, in turn, produce nitrogen, essential for plant growth. Adding squash to the mix also controls the growth of weeds, and recycling crop residue (the leftovers of a harvest) back into the soil promotes fertility. A monoculture, in which only one crop variety is grown on a plot of land, is a relatively recent agricultural technique, noted Ms. Mt. Pleasant. Though it is suited to high-yield mechanized harvests, it leaves crops vulnerable to disease and insects. A polyculture reduces the risk of an entire harvest being wiped out in this way.[27]

46. Aside from companion planting described above, indigenous peoples have developed ways of enhancing the soil without the use of commercial and chemical fertilizers. A common method is the introduction of biomass or green manure. In the mountain areas of the Cordillera region in the Philippines, the wild sunflower (*tithonia diversifolia*) is widely employed as an organic fertilizer. During land preparation, cut sunflower plants are directly incorporated in the soil as green manure for both irrigated and non-irrigated land. The cut plants are also used as a major component in compost. For the sunflower to be readily available, it is deliberately planted as hedgerows, near stonewalls, and along the edges of paddy fields, home gardens and sweet potato fields. Sunflowers are planted next to streams and rivers. The plants are cut at designated times and immersed in water to accelerate decomposition. Flowing water then carries the released nutrients downstream, into canals and then into paddy fields.[14]

2. Educational programmes on traditional agriculture

47. Since 1992, the Traditional Native American Farmers' Association has been working to revitalize traditional agriculture towards building healthy communities and people. As a result of their efforts, there has been an increased interest in agriculture in communities and among youth. The Association promotes family oriented farming as the best approach to developing a sound future in agriculture that ensures economic, social and health stability in their communities.

48. The Association's holistic approach employs agriculture as the starting point for building cultural pride, physical health, economic stability and ecologically sustainable communities. It works with all members of the community — young, old, male, and female. One of the programmes is the Traditional Agriculture and Permaculture Design Course, a 12-day course on sustainable community design,

[27] *Science Daily*, 2004.

which teaches youth participants such skills as building straw bale gabions, methods for assessing water quality, various planting techniques and garden designs, seed conservation techniques, preparation of traditional foods, cob building methods, harvesting of grey water and rain water, and using the dead pinion trees, which were victims of a nine-year drought, to make charcoal.[28]

3. Indigenous seed banking, propagation and sharing

49. Across the globe, a common initiative among indigenous peoples is the collective and intentional saving of traditional seeds and maintenance of landraces as a way to deal with the invasion of commercial and genetically engineered seeds.

50. Farming communities in Peru have signed an agreement with the International Potato Centre to protect both the genetic diversity of the region's numerous potato varieties and the rights of indigenous people to control access to those local genetic resources. Under the scheme, the Centre's scientists and local farmers repatriate potato varieties from the Centre's collection of specimens — the world's most comprehensive — and conserve them in a potato park. As well as providing food for the six communities that jointly own the land in southern Peru, the 15,000-hectare park will serve as a living library of potato genetic diversity. The agreement aims to ensure that the control of genetic resources is kept with the local people. Alejandro Argumedo, associate director of the Association for Nature and Sustainable Development — a Cusco-based civil society group that helped broker the deal — believes that it could serve as a model for other indigenous communities.[29]

51. The potato park is the brainchild of an indigenous organization called the Asociacion Andes (Quechua-Aymara Association for Sustainable Livelihoods — ANDES) and is being implemented by an association of six Quechua villages in the mountains south of Pisac in the Sacred Valley of the Incas. Under this initiative, the 8,000 villagers of the six communities of Amaru, Pampallacta, Quyo Grande, Sacaca, Paruparu and Chahuaytire have agreed to bring together the 8,661 hectares in their six communal land titles and manage them jointly for their collective benefit. Their aim is to conserve their landscape, livelihoods and ways of life, and to revitalize their customary laws and institutions.[30]

D. Obstacles and challenges

52. Access to and protection of traditional lands and water rights, the continuation of traditional practices and conservation of seed stocks are prerequisites to food security and the eradication of hunger. Traditional indigenous food production relies on cooperative collective harvesting and distribution, ensuring that everyone receives an equitable share and that surpluses are given to those most in need. Maintaining economic autonomy is essential to maintaining indigenous solidarity.

53. Threats to the survival of traditional practices, and in turn to the survival of indigenous peoples, are faced by communities all around the world. Imposed disruption of food supply and traditional economic systems, established cycles of agriculture, food gathering, hunting and fishing, is a form of continued colonization

[28] Traditional Native American Farmers' Association.

[29] Priya Shetty, 2005 (available at http://www.SciDev.net).

[30] See http://www.iucn.org.

that damages the attitudes, and eventually the cultural knowledge, of indigenous peoples. Hunger and food insecurity are unfortunate companions to poverty and undeveloped economies. Solidarity among indigenous communities in resistance to these threats is essential.

54. The policies of economic globalization, carried out by financial and trade institutions and agreements such as the North American Free Trade Agreement, other global institutions, such as the World Bank, the International Monetary Fund and the World Trade Organization, all stress food production for export rather than for local consumption. Under these trade regimes, food is neither produced nor distributed equitably. Indigenous and local communities and farmers who once nourished themselves from local sustainable food systems are forced from their lands, either by forced choice or no choice, due to privatization of their lands or development of large-scale agribusiness or natural resource extraction. Indigenous peoples and local farmers are forced to migrate to cities to compete for low wage jobs, resulting in putting themselves and their families in conditions of poverty, malnourishment and hunger.

55. It is a challenge for governments to prioritize rural development programmes aimed at ensuring food security of the people and small farmers over those aimed at natural resource extraction for commerce and profits.

56. Government policies have allowed natural resource extraction and development activities that have threatened and destroyed subsistence foods, traditional and modern small-scale agricultural practices and other food systems in North America, the Americas and other parts of the world, depriving indigenous peoples of their basic human right to food security. Governmental policies and development activities often put indigenous and local communities into a state of poverty, malnourishment and hunger. Such activities include the release of industrial toxic and radioactive waste which pollute both land and water, accumulating in fish, traditional crops, the commercial food supply, animals and soil, which are interrelated and essential for survival. Industrial agriculture and large-scale commercial animal production and processing facilities degrade soils, contaminate the air and water, threaten native seed stocks, disrupt historical, cultural and sacred areas and displace traditional agricultural and food security practices.[31]

57. Increasing dependence on non-traditional processed commercial foods of a consumer-oriented society is damaging the health of indigenous peoples. Diet-related maladies such as obesity and diabetes are elevated in indigenous communities, with diabetes rates in some communities as high as 85 per cent. Thyroid diseases, immune system disorders and cancers are also rampant. In industrialized countries such as the United States, virtually all food products are contaminated with persistent organic pollutants. While the residue levels of persistent organic pollutants in individual food items are small, when viewed in the context of daily amounts of food consumption, the contamination found is at or near levels of concern according to health-based standards set by United States Federal agencies.

58. Indigenous peoples from the arctic regions to the tropical and commercial agricultural regions, where industry, mining and agricultural chemicals are

[31] Indigenous Environmental Network. Statement on the Right to Food and Food Security (available at www.ienearth.org/ienaqua).

discharged, experience higher health risks and toxic exposure, as compared with dominant society.

IV. Drought and desertification[32]

59. Droughts highlight a general marginalization of drylands and the lack of government support to strengthen adaptation capacities of indigenous peoples. There is a lack of government investment in water infrastructure, lack of local incomes to drill private boreholes, as well as lack of local influence over development decisions.

60. Inequality of access to water during drought also leads to vulnerability of indigenous peoples. Access to water is critical not only for domestic consumption and hygiene, but also for economic activities, including cattle rearing, business, brick making or small-scale irrigated vegetable production.

61. The effects of droughts are evident mostly in indigenous nomadic pastoral communities' areas in many countries of Africa such as Mali, Niger, Chad, the Sudan and parts of Cameroon. The destruction of forests and heavy logging in those areas have increased the number of people affected by drought. Nomadic pastoralists and their livestock, which comprise their economy and livelihoods, become vulnerable and desperate duri droughts, which has an impact on the social, environmental and economical standards of living.

62. Many economic impacts of drought occur in agriculture and related sectors because of the reliance of those sectors on surface and groundwater supplies. In addition to losses in yields in crop and livestock production, drought is associated with insect infestations, plant disease and wind erosion. The incidence of forest and range fires increases substantially during extended periods of drought, which in turn places both human and wildlife populations at higher levels of risk.

63. Environmental losses due to drought are the result of damage to plant and animal species, wildlife habitat, air and water quality, forest and range fires, degradation of landscape quality, loss of biodiversity and soil erosion. Some of those effects are short-term, with conditions returning to normal following the end of the drought. Other environmental effects last for some time and may even become permanent. Wildlife habitat, for example, may be degraded through the loss of wetlands, lakes and vegetation. However, many species eventually recover from this temporary aberration. The degradation of landscape quality, including increased soil erosion, may lead to a more permanent loss of biological productivity.

64. Social impacts of drought involve public safety, health, conflicts between water users, reduced quality of life and inequities in the distribution of disaster relief. Population migration is a significant problem in many countries, often stimulated by a greater supply of food and water elsewhere. Rural to urban migration has increased, causing stress and poverty for the women, elderly, sick and children who are left in the rural areas. Pastoralists migrate with their animals in search of water and pasture.

65. Among the nomadic pastoralists, lack of water and pasture for their livestock causes conflicts among tribes as they compete for resources. After the drought has

[32] Mulenkei, Lucy. Africa paper for the United Nations-Commission on Sustainable Development.

abated, the migrants seldom return home, which deprives rural areas of valuable human resources. The drought migrants place increasing pressure on the social infrastructure of other areas, which leads to increased poverty and social unrest.

A. Actions of indigenous peoples

66. The indigenous pastoralists of Africa have developed some practices over time, which help mitigate the effects of drought.

1. Herd management

67. This is an important strategy for drought mitigation. Factors to be considered include the expected drought duration, the current water and feed supplies, the composition and body condition of the herd, and the financial resources available. During drought, pastoralists employ the following strategies:

(a) Reduction in herd numbers. When feed resources are getting short, one solution is to critically evaluate the members of the herd and eliminate those that are less useful. Sale or relocating herd to non-affected pastures are the two options available to reduce stock numbers;

(b) Strategic weaning of calves. During a drought, the production of milk rapidly depletes a cow's body reserves, while the calf derives little benefit. Early weaning of the calf gives the cow a better chance of survival. Most calves over three months of age will survive on grain and Lucerne hay or molasses and protein meal diets;

(c) Herd segregation. Segregating animals into classes gives the herd a better chance of getting needed feed supplies. It makes possible the preferential treatment of vulnerable classes. The older dry cows can be moved to the poorer forage fields;

(d) Parasite control. Cattle under nutritional and other stresses are less resistant to parasites. Worms can be a serious problem with young cattle. During drought conditions, all cattle under 18 months of age should be treated for worms;

(e) Optimizing the use of drought-affected paddock. Local water facilities may be installed, with supplementary hand feeding;

(f) Attention to contaminated water supplies. Polluted surface waters represent a death trap for drought-weakened cattle. Fencing may be necessary to separate cattle from undesirable watering holes.

2. Local technologies

68. Local technologies, such as digging of shallow wells in dry riverbeds, form the backbone of strategies to survive. Subsurface dams in seasonal rivers and water harvesting are cheap technologies that have been implemented in dry land areas in order to make better use of irregular rainfall. Access to water is critical not only for domestic consumption and hygiene, but also for economic activities, including cattle rearing, brick making or small-scale irrigated vegetable production that people often rely on when the harvest fails.

B. Obstacles and challenges

1. Barriers hindering indigenous peoples' adaptation strategies

69. Obstacles to the adaptation of strategies by indigenous peoples include:

(a) Lack of attention to the income sources and income generating activities (such as charcoal) of poor people during drought, which are limited by the ambiguous legal framework, which siphons profits away from the poor producers, discourages investment and encourages unsustainable practices;

(b) Discriminatory statements labelling adaptation strategies of the poor as unsustainable or primitive;

(c) Little value added to natural products and poor market position of products;

(d) Lack of both infrastructure for transportation and information exchange adapted to the needs of indigenous peoples;

(e) Marginalization of nomadic pastoralism and barriers to migration;

(f) Poor health, which limits household labour and engagement in adaptation strategies;

(g) Conflicts and insecurity, which lead to loss of life and productive assets and make access to key resources for adaptation, such as drought grazing, unsafe.

2. Removing barriers to indigenous people's adaptation strategies

70. People's responses in the face of shocks and longer term changes can be both facilitated and hindered by government policies and measures as well as development projects. Many of the coping and adaptation strategies used by poor people are currently undermined by political, economic and legal structures. Such structures need to be targeted in efforts to reduce vulnerability. Economic structures that increase vulnerability include those that create increased marginality of on- and off-farm livelihoods and natural resource-based activities, growing local inequality, environmental degradation, the spread of HIV/AIDS, conflict and insecurity, and decreasing employment opportunities.

3. Measures to strengthen indigenous people's livelihood and adaptation strategies

71. Measures to strengthen the livelihood and adaptation strategies of indigenous people include:

(a) The provision of support for and development of local technologies, including those promoting shallow wells, subsurface dams, water harvesting techniques, local seed varieties, planting of indigenous tree species and marketing of local products;

(b) Documentation of past and present adaptation strategies and supplementing them with relevant strategies and technologies and support for local knowledge systems;

(c) Facilitation of improvements to production systems that are adapted to normal climate stress, such as pastoralism and indigenous tree products, through

strengthening of the marketing infrastructure, veterinary services, research and development, and processing and value adding;

(d) Evaluation of how the provision of infrastructure may affect the vulnerability of indigenous peoples to climate change;

(e) Improvement of drainage systems and flooding protection in low-income areas, the avoidance of relocation, if possible, and ensuring continued access to livelihoods; cooperation with the inhabitants on infrastructure and house improvements or, if necessary, on relocation;

(f) Encouragement and recognition of the drought cycle management practiced and used by indigenous peoples to cope with drought.

72. Adaptation to drought should be addressed more broadly, through three types of measures. First, the efforts should reduce the direct risks of drought on indigenous peoples' strategies to secure their material and non-material needs. Second, deeper understanding, facilitation and broadening of the opportunities for indigenous peoples' adaptation measures towards climate stresses in the short term and changed livelihood systems in the long term. Finally, the specific social and environmental factors and changes leading to inability to cope or adapt should be understood and addressed. In this way, sustainable adaptation measures can be achieved, by reducing both poverty and vulnerability to drought. Furthermore, interventions can focus on enhancing poor people's access to natural resources, the promotion of community management practices of ecosystems, and the facilitation of income-generating activities through the innovative use of ecosystem services.